WISCONSIN DIVISION OF PUBLIC HEALTH
Department of Health and Family Services

Blastomycosis

Disease Fact Sheet Series

What is blastomycosis?

Blastomycosis is an uncommon, but potentially serious fungal infection. It primarily affects the lungs and skin and is caused by the fungus *Blastomyces dermatitidis*. The illness that can result from exposure to this organism is extremely variable. Infected individuals may not develop any symptoms or may develop mild and rapidly improving respiratory symptoms; a progressive illness involving multiple organ systems can occur in untreated patients.

What are the signs and symptoms?

Some persons infected with *Blastomyces* fungus never develop symptoms. Evidence of their infection is only found by chance on a chest x-ray or blood test. Other individuals may develop an acute lung infection that begins with a fever and dry cough and may progress to weight loss, chest pain, and a persistent cough associated with the production of a thick sputum. Other symptoms may include muscle aches, night sweats, coughing up blood, shortness of breath, and chest tightness. The time from a person's exposure to the fungus to the time that symptoms develop can vary from three weeks to several months. Signs or symptoms and the infection may disappear spontaneously without treatment. However, in a small percentage of cases the infection may spread by blood to the skin, bone, or other organs. Blastomycosis of the skin appears as enlarging raised lesions with ulcerating centers. These usually occur on the exposed parts of the body, including the face, hands, wrists, feet, and ankles. In more severe cases, blood-borne fungal lesions may also occur in bones, the prostate gland, testes, and kidneys.

How is blastomycosis diagnosed?

Infected symptomatic individuals usually have abnormalities present on their chest x-rays. However, these abnormalities are not unique to blastomycosis and may occur with many other respiratory illnesses. The diagnosis of blastomycosis can be confirmed by the identification of the fungus *B. dermatitidis* in a culture of the sputum, skin, or biopsy specimen of infected tissue. Blood specimens may also be used to determine if an individual has had a previous blastomycosis infection; however, blood tests will not identify all cases and on occasion may be falsely positive. Similarly, skin tests are not accurate in diagnosing blastomycosis.

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How does a person develop blastomycosis?

Blastomycosis develops when spores of the *B. dermatitidis* are breathed in and establish a primary infection in the lung. In nature, the fungus probably resides in the soil in decaying foliage and vegetation. Only under quite specific conditions of humidity, temperature and nutrition can the fungus grow and produce the infecting particles, the spores. The spores become airborne when the soil in which the fungus is growing is disturbed. This aerosol is then inhaled by humans or other mammals. Thus, activities that involve disrupting the soil are likely to put a person at increased risk for acquiring blastomycosis.

Dogs may also develop blastomycosis because they also inhale the spores following disruption of the soil. Infected dogs cannot transmit the disease to humans, but do serve to indicate that an area may be infected with the fungus. Blastomycosis cannot be transmitted from person-to-person.

How is blastomycosis treated?

Once blastomycosis has been diagnosed, the disease can be treated with one of three anti-fungal drugs – itraconazole, amphotericin B, or fluconazole. For life-threatening blastomycosis or blastomycosis of the central nervous system, amphotericin B is the treatment of choice. Itraconazole or fluconazole are excellent for treatment of patients who are not critically ill or who have no central nervous system involvement.

How common is blastomycosis?

In spite of recent widespread publicity, blastomycosis is a relatively rare disease. From 1992 to 2001, an average of 86 cases of blastomycosis were reported to the Wisconsin Division of Public Health annually. It is likely that other persons are infected with the fungus but only develop minimal symptoms and are not diagnosed or reported to the Division of Health. Almost all cases of blastomycosis occur as isolated events and only rarely have outbreaks or clusters of cases been reported. Nationally, blastomycosis occurs along the Mississippi River Valley from Minnesota and Wisconsin to Arkansas, along the Ohio River Valley, and in the southeastern United States. Although cases of blastomycosis have been reported from all areas in Wisconsin, there appears to be an increase in the number of reported cases occurring in the northern and central counties. While *B. dermatitidis* is widely distributed geographically, the actual area infected with the fungus is likely to be small and may be limited to one rotting log or several square yards of infected soil. Depending upon environmental conditions, the area may be infected for only a brief time.

How can blastomycosis be prevented?

Currently, there is no way to identify areas where the organism exists. Therefore, until more is known about the existence of *B. dermatitidis* in nature, it cannot be successfully controlled in the environment. More effective skin and blood tests are needed to diagnose blastomycosis and to survey individuals in areas where blastomycosis is suspected to be prevalent. Through such surveys, high risk areas in the environment could be identified and hopefully the necessary environmental conditions for the growth *B. dermatitidis* characterized. Control efforts may then be possible.

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